

SWIDLER
&
BERLIN
CHARTERED

ORIGINAL

EX PARTE OR LATE FILED

July 13, 1998

RECEIVED

JUL 13 1998

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

BY HAND DELIVERY

Magalie Roman Salas, Esq.
Federal Communications Commission
1919 M Street, N.W., Room 222
Washington, D.C. 20554

Re: CC Docket No. 97-211
Application of WorldCom, Inc. and MCI Communications Corporation

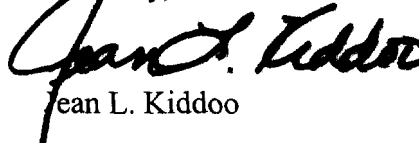
Dear Ms. Salas:

Enclosed on behalf of WorldCom, Inc. and MCI Communications Corporation for inclusion in the above-reference docket, and in response to questions raised by Commission Staff, are the following:

- Exhibit 1 J.P. Morgan Securities, Inc. Credit Opinion - Telecommunications: WorldCom, Inc., May 19, 1998.
- Exhibit 2 Salomon Smith Barney Company Report on WorldCom, Inc., April 9, 1998 (cited in Declaration of Sunit Patel, July 8, 1998 Ex Parte letter, at n.1).
- Exhibit 3 Credit Suisse First Boston Corporation, WorldCom, Inc. - Company Report, November 18, 1997 (cited in Declaration of Dennis W. Carlton and Hal S. Sider, January 25, 1998, Exhibit B to Joint Reply of WorldCom, Inc. and MCI Communications Corporation to Petitions to Deny and Comments at n.8.)

I would appreciate it if you would please date-stamp the enclosed extra copy of this filing to acknowledge receipt by the Commission.

Sincerely,


Jean L. Kiddoo

Enclosures

cc: Michelle Carey (CCB)
Larry Blosser (MCI)

No. of Copies rec'd
List ABCDE

074

EXHIBIT 1

Credit Opinion – Telecommunications

WorldCom, Inc.

- **WorldCom (WCOM) is an integrated, facilities-based telecommunications company providing state-of-the-art local and long distance telephony, data transmission, and Internet products in the U.S. and abroad**
- **WCOM's growth of higher-margin data transmission and international telephony revenues offsets increasing competition in the U.S. long distance market**
- **WCOM is well poised to capitalize on the revenue opportunities in the world's deregulating telephone markets, especially Europe**
- **WCOM's diversity of product offerings and geographic presence limits its competitive exposure to any one segment of the telecommunications market**
- **WCOM's business prospects are relatively unencumbered by regulatory actions or challenges**
- **WCOM's planned merger with MCI Communications is a good strategic fit and would create the premier telecommunications provider in the industry**
- **We are assigning a JPMS rating of A3 to MCI WorldCom; rating agency conservatism allows for rating improvement over the long term**

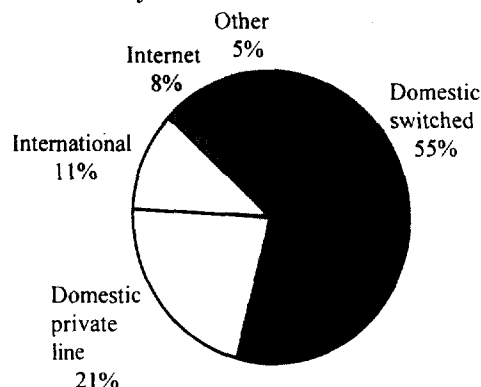
Summary

WorldCom, Inc. (WCOM) is an integrated, facilities-based telecommunications company providing local and long distance telephony, data transmission, and Internet products in the U.S. and abroad (see Chart 1). WCOM has grown from a relatively obscure upstart reseller of U.S. long distance service to the company redefining the telecommunications paradigm for the next century by capitalizing on deregulating markets and technological advances. WCOM's product focus is higher-margin telecommunications services for business customers and data transmission. WCOM has achieved its prominence through both strategic acquisitions and internal growth. The company acquired facilities-based long distance carriers early in the decade and has recently added local and Internet assets to fill out its product offerings. WCOM's position as a facilities-based carrier provides a significant cost advantage over other carriers and allows the company to reduce customer churn through bundled product offerings. The company's

entrepreneurial origin has resulted in relative independence from regulatory actions or challenges and has increased its flexibility in product offerings. WCOM's planned merger with MCI Communications (MCI) would further its competitive position and broaden its asset base. The MCI WorldCom combination would result in a company that would be the second-largest U.S. long distance carrier, the largest U.S. competitive local exchange carrier (CLEC), the world's second-largest carrier of international long distance traffic, and the world's leading carrier of Internet traffic. MCI WorldCom would be the largest telecommunications company in the world that did not begin as a monopoly.

We are assigning a JPMS rating of A3 to the combined MCI WorldCom entity. Absent the MCI WorldCom merger, our rating on WCOM is BBB3 with a positive outlook. Our A3 rating on the combined company is premised on the expectation of improving cash flow as operational and capital savings from the merger with MCI are realized, continued revenue growth from higher-margin businesses, and decreasing reliance on the commodity-priced U.S. long distance business. Potential asset sales of nonstrategic assets are further positive considerations. Our rating opinion is also predicated on the continued use of equity

Chart 1
1997 revenues by business

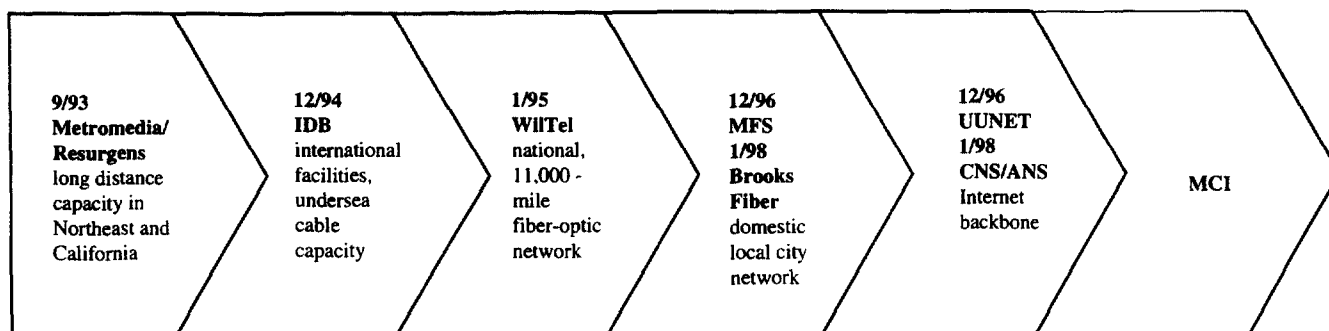


Moody's	S&P	BBB	JPMS
Baa2	BBB+	BBB-	A3
Stable	Positive	Stable	Stable

* Anticipated MCI WorldCom rating/outlook.

Chart 2

Mergers and acquisitions



for acquisitions and management's ability to integrate and manage a significantly larger enterprise.

WCOM offers local and long distance services over its own network, providing a significant savings and competitive advantage over its competitors.

WCOM is the first telephone carrier in the U.S. since AT&T to offer local and long distance services over its own nationwide network (see Table 1). A series of acquisitions in the long distance arena positioned WCOM as the fourth-largest long distance carrier in the U.S. (see Chart 2). The company added local service to its repertoire through another series of acquisitions in 1996 and 1998. WCOM accelerated its local city network development by acquiring two CLECs, MFS Communications (MFS) and Brooks Fiber Properties (Brooks Fiber), in December 1996 and January 1998, respectively. The MFS network, with local loop facilities in more than 60 markets domestically, extended WCOM's network "the last mile" to the customer. MFS also contributed assets in several international locations. The acquisition of Brooks Fiber Properties further expanded WCOM's local presence into 35 new markets. As of December 31, 1997, WCOM had approximately 20,000 domestic long distance route miles and 6,000 local route miles, including Brooks Fiber, in addition to a facilities-based presence among Internet service providers (ISP) with its UUNET Technologies (UUNET) subsidiary.

WCOM's position as a facilities-based carrier, with the immediate local presence in 102 U.S. markets that would be provided by the merger with MCI, provides an advantage over other, would-be local competitors (see Chart 5). There are only two means of entry into the local market – by leasing elements of an existing local network from the incumbent local exchange carrier (ILEC) or by building or buying another local network. To date, both options have

proven financially challenging. On average, CLECs lease the network under wholesale contracts at a 20% discount to the ILECs' retail prices, leaving no room for distinction of a product that can only be differentiated by price. Both AT&T and MCI have indicated that market conditions prohibit local resale from being a viable entry into U.S. local markets. Similarly, building or buying another local network can prove costly. Last year, MCI confirmed what the investment community already knew – building local networks is dilutive – by announcing that it expected to lose \$800 million on its local market strategy and forecasted a similar loss in 1998. By owning the local networks, WCOM is able to post higher profit margins and to differentiate its product offerings by technology in addition to price. Additionally, as a facilities-based carrier, WCOM avoids interstate access charges for calls terminating on its own local infrastructure. As WCOM's local presence expands, and the company migrates additional traffic to its local networks, the company should realize additional operating cost reductions and accompanying profit margin increases.

In addition to lower network costs, ownership of facilities offers two further important benefits – the ability to bundle

Table 1
Network statistics¹

	12/31/97	12/31/96
Domestic long distance route miles	19,619	12,589
Local domestic and international fiber miles	547,529	327,465
Local domestic and international route miles	6,741	4,899
Local circuits in service (voice grade equivalents)	10,702,851	6,387,549
Buildings connected	27,785	16,253
Active voice switches - local and long distance	138	93
Telco collocations	345	199

¹ Statistics include Brooks Fiber Properties, CompuServe Network Services (CNS), and ANS Communications.

products and the opportunity for capacity resale. Bundling products is a key strategy to increasing revenue per customer and decreasing churn. As a facilities-based carrier, WCOM is also able to increase revenue sources by reselling its network to other carriers. Since WCOM caters to businesses, it can sell excess capacity for use by residential customers during off-peak business hours. For example, UUNET leverages its infrastructure through a reseller strategy. UUNET's business customers use its network during the day, while UUNET resells the use of its network to telephone companies, on-line service providers, and other ISPs that serve consumers in the evening. Additionally, by owning its own facilities, WCOM can dictate and monitor the quality of its services, perform upgrades more easily, and roll out new services. Winning large telephone contracts from large businesses and governments usually requires owning the facilities in order to guarantee high quality and low-cost service.

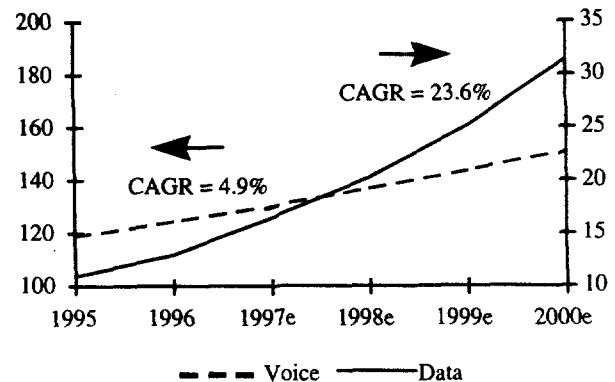
Several companies are exploring the use of cable television networks to enter the local loop. After much discussion, cable television may finally be closing in on an Internet or telephony product offering. Although we are less than optimistic on the near-term success of such endeavors, we admit that the improving technology may make cable television an alternative network over time. Given WCOM's business focus, we are not concerned about the ultimate success or failure of cable telephony or Internet. Cable telephony or Internet is most likely to be a residential vehicle, since the vast majority of U.S. business locations has limited cable service access.

WCOM possesses the assets to capitalize on the explosive demand for data services and the Internet.

Although revenues from voice services still dwarf data and Internet service revenues, technological advances dictate that a strong presence today in the data and Internet markets is necessary for future success. Data and Internet services represent the fastest growing segment of telecommunications, with the projected growth of data and Internet services far outpacing that of voice services (see Chart 3). In a 1997 study for the U.S. market, the Yankee Group found that the voice market, which includes local and long distance wireline revenues, will grow to \$150.9 billion in 2000 from \$118.9 billion in 1995. On the other hand, the research group projected that data revenues will nearly triple to \$31.4 billion in 2000 from \$10.9 billion in 1995. The explosive growth is expected to stem from both businesses and consumers. Businesses increasingly want to use the Internet and Intranets to communicate more quickly and easily and to transmit large quantities of information both externally and within their firms. In the consumer market, more individuals require local area network (LAN) access and high-speed data transfer from their homes.

Chart 3

**Estimated voice versus data revenues in the U.S. market
\$ billions**

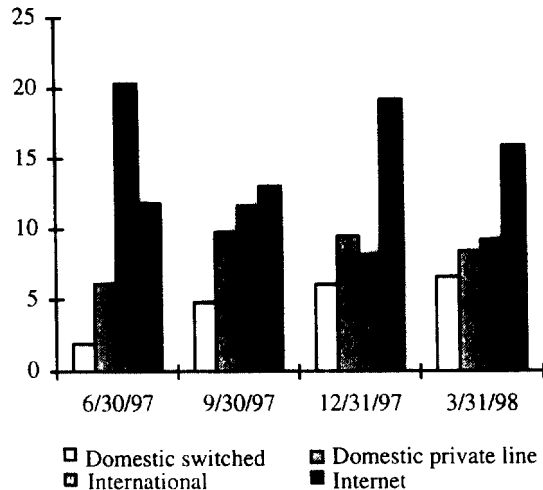


CAGR = compound annual growth rate.
Source: The Yankee Group, 1997.

Moreover, with the introduction of lower, flat-rate Internet access fees, the number of Internet subscribers has surged and is expected to grow exponentially. In a 1996 study for the U.S. market, the Yankee Group projected that Internet access customers would grow to over 43 million households in 2000 from approximately 10 million households in 1995.

With the introduction of Internet telephony and fax products, the telecommunications industry is poised to see the biggest revolution since the development of automatic switching equipment rendered telephone operators obsolete. It is expected that Internet telephony and fax capabilities will gradually replace traditional long distance service due to the price advantage of the new technology. International telephone rates are set at artificially high levels to offset the settlement charges international telephone companies pay each other. By bypassing the local post, telephone, and telegraph administration (PTT), Internet telephony and fax capabilities offer significant savings. For example, a study by North River Ventures in 1995 found that sending a 42-page document by fax to Tokyo from New York costs \$28.83 and takes 31 minutes, whereas sending the same document over the Internet costs 9.5 cents and only takes two minutes. Since faxing accounts for approximately 40% of all international traffic, long distance companies face considerable revenue loss to the new technology. The loss of international voice traffic may not occur as quickly, since Internet telephony is still in its infancy and must overcome some service quality issues, such as a time delay. As the technology improves and is adopted by more customers, long distance companies will need to develop an Internet presence to avoid market share erosion of their core business.

Chart 4
Sequential revenue growth rates by business¹
percent



¹ JPMS estimates. Pro forma revenues assuming the acquisitions of CNS and ANS and the Brooks Fiber merger occurred on January 1, 1997.

Domestic switched = domestic local and long distance telecommunications traffic that is switched or transferred at the Central Office and runs along the public network.

Domestic private line = dedicated telecommunications connections between businesses/governments and WorldCom.

With its acquisitions of UUNET, CompuServe, and ANS Communications, WCOM is in the best position among all telecommunications providers to take advantage of the surging data/Internet market. UUNET, which WCOM acquired in the acquisition of MFS, is the world's largest ISP, with 975 million POPs worldwide and points of presence throughout the U.S., Canada, Europe, and Asia. In line with WCOM's strategy, UUNET focuses on the business market. WCOM further solidified its hold on the Internet backbone in a three-way deal with CompuServe and America Online completed in January 1998. WCOM bought CompuServe and simultaneously agreed with America Online to swap CompuServe's on-line business for America Online's network - ANS Communications. As a result, WCOM ended up with the hardware backbone of both CompuServe and America Online. Although Internet revenues currently account for only about 15% of WCOM's total revenues, it is the fastest growing business segment for the company (see Chart 4). WCOM's position can be attributed to the UUNET, ANS, and CompuServe network backbone, which provides its business customers with basic access services; value-added services, such as network integration, client software, security products, and content development services; and resale services.

In addition to the UUNET, ANS, and CompuServe network backbone, WCOM's nationwide, fiber-optic network can further support the rising demand for data services. Fiber optics offer several pluses in capacity, quality, and reliability over a copper wire infrastructure. The copper wires employed by incumbent telecommunications companies were built for voice communications and need to be upgraded to support the increased bandwidth requirements of high speed data transfer and the Internet.

WCOM is relatively unencumbered by regulatory actions or challenges.

Unlike many of its competitors, WCOM's business prospects are not dependent on the outcome of regulatory issues. Since WCOM is primarily facilities based, the future of the U.S. Federal Communications Commission's (FCC) Interconnection Order is not as vital to WCOM as it is to other CLECs, including the long distance carriers. As adopted by the FCC, the Order set guidelines for the states to follow in determining prices for leasing the ILECs' unbundled network elements (UNE) to the CLECs and prohibited the ILECs from separating elements of the network that are currently combined, unless requested by the CLECs. The U.S. Eighth Circuit Court threw out these provisions in an appeal by the ILECs, and the case is currently under review by the U.S. Supreme Court. The CLECs are counting on a favorable ruling from the Supreme Court - one that will allow for the most cost-efficient connection to other carriers' local networks. Since WCOM owns its own facilities, it will not be negatively affected if the Supreme Court upholds the lower court ruling, prohibiting the FCC from setting prices and requiring the CLECs to perform the costly task of rebundling UNEs (see *Telecommunications Outlook for 1998*, B. Chapman, E. Zaharis, February 27, 1998).

WCOM's focus on high-end business customers and bundled product offerings bolsters its competitive position.

It is possible that the FCC will grant approval to an RBOC (Regional Bell Operating Company) to enter the long distance business by the end of this year or early next year, allowing another set of competitors into the U.S. long distance market. Although long distance prices will undoubtedly decrease, WCOM is expected to fare better than other long distance carriers against the increasing competition, due its favorable customer and business mix. WCOM's business customer focus minimizes the threat from RBOC entry into the long distance business, since RBOCs are expected to focus their long distance efforts on their sizable residential customer base. Unlike AT&T, which

generates over 50% of its revenues from residential customers, WCOM currently serves a minimal number of residential customers. MCI's residential presence could be vulnerable to RBOC entry. However, MCI's sophisticated marketing efforts have been successful in attracting high-end customers that participate in bundled product offerings or are members of affinity programs, such as airline frequent flyer miles programs, and are unlikely to switch carriers. In terms of business mix, U.S. long distance is only one portion of WCOM's bundled offerings. Any margin erosion in U.S. long distance is expected to be more than offset by higher-growth businesses such as data services, Internet products, and international markets.

WCOM's ability to bundle services is also expected to act as a barrier against competitors, especially in the long distance market. It is less likely that a business customer would switch providers if WCOM can satisfy the company's voice and data needs in a cost-efficient manner. The ability to leverage the same customer for more than one product offering is also critical to holding down marketing and administrative expenses. Most other carriers only strive to offer the same array of services as WCOM at the same level of quality. Among the businesses of AT&T and Sprint,

local and Internet services are the weakest. Although the RBOCs can match WCOM's local offerings in urban centers, they cannot provide similar long distance or Internet service. Moreover, WCOM's state-of-the-art, fiber-optic network puts the company a head above the rest. While the RBOCs are still upgrading their copper networks and other carriers are purchasing network capacity via upstarts such as Qwest Communications and The Williams Cos., WCOM already has the infrastructure in place to capture a large share of the data and Internet services marketplace, as well as the back office facilities to offer wholesale services to the reseller community.

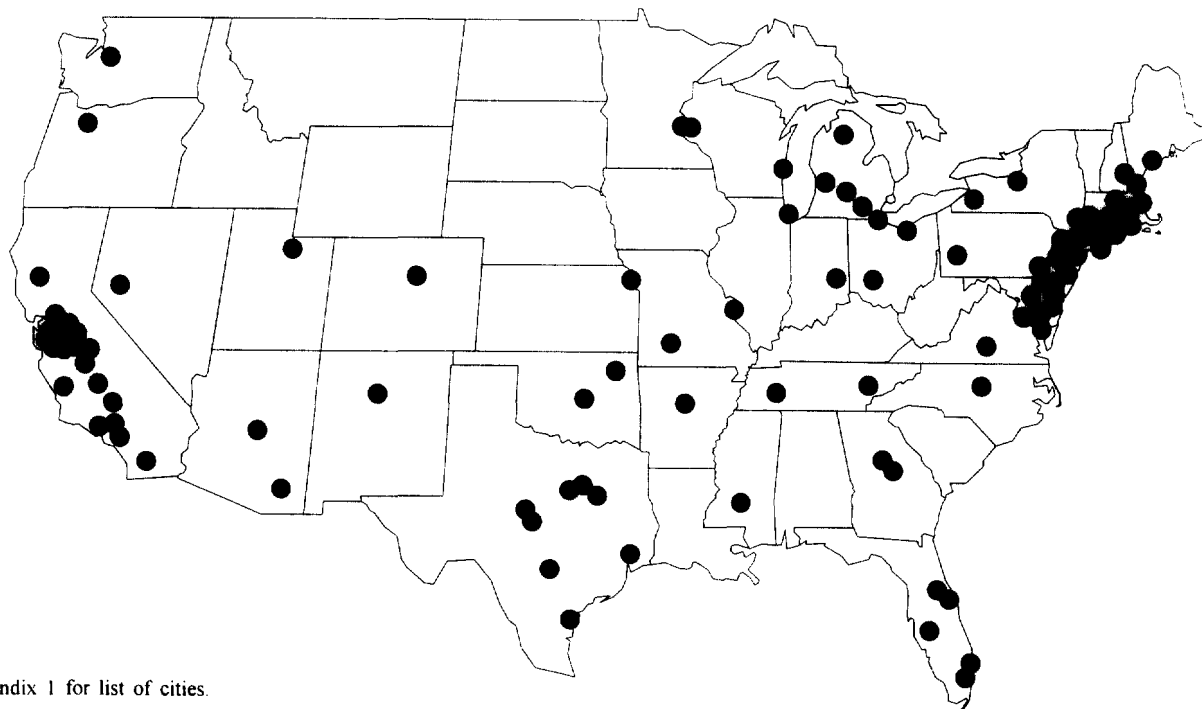
We expect WCOM to focus on its lack of a wireless service offering within the next several years; the lack of both a good business case and a national standard precludes a WCOM investment in wireless in the near term.

WCOM does not have a presence in wireless; however, since the service is an integral part of a bundled product offering, we expect WCOM to address its lack of wireless capabilities over the next several years. Because data is a key component of WCOM's strategy going forward, the

Chart 5

WorldCom, Brooks Fiber, and MCI local networks

in operation or development, as of October 1, 1997



See Appendix 1 for list of cities.

Table 2

WorldCom's European presence

European country	Network & facilities	Interconnect agreements	Telecom market size per country ¹ (\$ billions)
U.K.	<ul style="list-style-type: none"> • 180 route kilometer network in London • Five voice switches • Data network node • 113,000 customer ports in service • Multiple Internet points of presence 	British Telecom	25.4
France	<ul style="list-style-type: none"> • 40 route kilometer network in Paris • One voice switch • Data network node • 4,920 customer ports in service • Multiple Internet points of presence 	France Telecom	23.6
Germany	<ul style="list-style-type: none"> • 57 route kilometer network in Frankfurt • Eight voice switches • Eight data network nodes • 21,800 customer ports in service • Multiple Internet points of presence 	Deutsche Telekom	46.1
Switzerland	<ul style="list-style-type: none"> • Network under construction in Zurich • Two voice switches • Data network node • 994 customer ports in service • Multiple Internet points of presence 		8.9
Sweden	<ul style="list-style-type: none"> • 19 route kilometer network in Stockholm • One voice switch • 2,490 customer ports in service • Multiple Internet points of presence 	Telia	5.7
Ireland	<ul style="list-style-type: none"> • Network under construction in Dublin • One voice switch • Data network node 		1.1
Belgium	<ul style="list-style-type: none"> • 33 route kilometer network in Brussels • One voice switch • Data network node • 440 customer ports in service • Multiple Internet points of presence 	Belgacom Telecom	4.3
The Netherlands	<ul style="list-style-type: none"> • 37 route kilometer network in Amsterdam • One voice switch • Data network node • 1,568 customer ports in service • Multiple Internet points of presence 	PTT Telecom	8.1
Italy	<ul style="list-style-type: none"> • One voice switch • Data network node • Multiple Internet points of presence 		20.0

¹ Per annum as of 1997.

Source: International Telecommunications Union.

company will also need to offer a mobile access capability to the Internet. To date, WCOM has avoided the wireless market due to the lack of both a good business case and a national standard. A wireless acquisition would be dilutive to WCOM's earnings at this point in time, and the company is not willing to pay this price in order to be first in the market. PCS has yet to be fully rolled out, and there is no national wireless provider. Furthermore, in the U.S., wireless service is primarily a personal market, which does not conform to WCOM's business strategy. For these reasons, in the near term, WCOM may be more likely to pursue wireless internationally, where GSM has been established as the standard and wireless is becoming a corporate buying decision, before expanding in the U.S.

A strong international presence would complete WCOM's strategy to be an integrated service provider and offers a tremendous revenue opportunity.

International expansion is another component of WCOM's strategy to be an end-to-end telecommunications provider. With increasing deregulation in international markets – via European liberalization on January 1, 1998, and privatizations in Latin America – international investments provide a tremendous revenue opportunity. Approximately two-thirds of the global telecommunications market is open to competition, compared to about one-third one year ago. The \$200 billion U.S. telecommunications market repre-

sents just a fraction of the \$700 billion global market. The International Telecommunications Union estimates the size of the market for telecommunications services in those European countries in which WCOM has operations at \$154 billion. The Latin American telecommunications market for all services is valued at over \$50 billion and is projected to grow to over \$67 billion by 2000. WCOM reported a 74% growth in revenues from operations outside the U.S. to \$818.5 million in 1997. We expect WCOM, leveraging its expertise gained in the U.S. market, to continue its international growth. WCOM has virtually completed the build-out of its domestic network, aside from planned overbuilding, and is deploying the capital to international network expansion. The \$800 million in capital expenditures allocated to U.S. construction in 1997 will now be allocated to the European network. An overseas presence is especially important in serving WCOM's "bread and butter" business customers, especially large, multinational corporations that require a high-bandwidth, global network to allow for seamless voice and data communications.

WCOM has invested heavily in Europe and, as deregulation sweeps the market, the company is poised to capitalize on its time-to-market advantage (see Table 2). WCOM has followed a similar strategy in Europe as in the U.S. to be a facilities-based carrier in order to reduce costs and increase margins. WCOM builds local access networks in key

Table 3

WorldCom, MCI, and Telefonica de Espana partnership details

Europe

- Telefonica will join WCOM's European network as a distributor.
- Telefonica has an option to purchase a 10% stake in WCOM's existing European operations.
- Telefonica has an option to purchase 46% of WCOM's existing Italian operations.
- WCOM and Telefonica will form a partnership, managed by WCOM, to expand into Eastern and Southern Europe. WCOM and Telefonica will own 51% and 49% of the venture, respectively.

Latin America

- MCI and Telefonica will continue their Pan-American joint venture, Telefonica-Panamericana MCI (TPAM). It is 51% and 49% owned by Telefonica and MCI, respectively, and is managed by Telefonica. TPAM plans to build an all-digital network linking major business centers in Latin America. By the year 2001, it will have gateway connections to MCI, WCOM, and Telefonica facilities in North America and Europe. MCI and Telefonica will also merge their existing activities in Puerto Rico and make them a part of the venture.
- MCI has an option to purchase 10% of Telefonica Internacional (TISA), Telefonica's international arm primarily focused on Latin America. TISA operates companies in Argentina, Brazil, Chile, Peru, and Puerto Rico.
- Telefonica will invest \$250 million in Avantel, the Mexico long distance carrier partly owned by MCI, upon resolution of regulatory issues with the Mexican government.
- A 50%-50% joint venture between TISA and MCI Systemhouse will provide systems outsourcing and integration services to business and government customers in Latin America.

U.S. and international Hispanic market

- MCI and Telefonica will create a 70%-30% joint venture, managed by MCI, to provide customized products, promotions, marketing, and customer service programs targeting the U.S. Hispanic consumer and small business markets, as well as the international Hispanic market.

centers and long distance facilities where demand is strong, provided it is allowed by the country's regulatory framework. Also, similar to WCOM's strategy in the U.S., it has signed Interconnect Agreements with the countries' major telecommunications providers to expand its reach. In order to serve multinational customers, WCOM will complete a pan-European cable – Ulysses – in mid-1998. The network is a cross-border infrastructure that will connect London, Amsterdam, Brussels, Paris, and Frankfurt and serve as the platform for voice and data communications demanded by large corporations, as well as support the global Internet market. The next step in the process is to build out the network in Frankfurt and several other cities in Germany. WCOM is the first company to build a cross-border, high-capacity network, giving it a significant advantage over the national carriers that cannot provide data transfer at the same level of efficiency. The final cog in the wheel is a trans-Atlantic cable – Gemini – built in a joint venture with Cable & Wireless and placed into service in the first quarter of 1998. The network, which is connected to the pan-European network, terminates in the London and New York city centers and is a gateway to WCOM's European and U.S. networks.

WCOM's strategy to deliver high-bandwidth, end-to-end services worldwide is further complemented by the strong international presence of its ISP subsidiary. More than half of UUNET's total POPs are international. Its presence is particularly strong in Europe, where it has wholly owned operating subsidiaries in the U.K., France, Germany, the Netherlands, Belgium, and Switzerland.

Recently announced partnerships between WCOM, MCI, and Telefonica de Espana fortify WCOM's European strategy and open up new avenues in Latin America.

WCOM resolved questions regarding its Latin American strategy after it announced partnerships between itself, MCI, and Telefonica de Espana (Telefonica) (see Table 3). The agreements build on the Pan-American joint venture created by MCI and Telefonica in April 1997. First, WCOM and Telefonica formed a partnership, owned 51% by WCOM and 49% by Telefonica, to expand into Eastern and Southern Europe. Telefonica also has an option to purchase a 10% stake in WCOM's existing European operations. Second, MCI and Telefonica agreed to continue their Pan-American joint venture, owned 51% by Telefonica and 49% by MCI, to build an all-digital network to link major business centers throughout Latin America both to each other and to gateway connections to MCI, WorldCom, and Telefonica facilities in North America, Europe, and other parts of the world. The partnership also allows for MCI to take a 10% stake in Telefonica

Table 4
1997 versus 1996 revenues
\$ millions

	Actual 1997	Pro forma 1996 ¹	Percent change
Domestic switched	3,992.1	3,323.3	20%
Domestic private line	1,575.1	1,167.0	35%
International	818.5	469.2	74%
Internet	566.0	253.2	124%
Other	399.7	422.5	-5%
Total revenues	7,351.4	5,635.2	31%

¹ Pro forma revenues assuming the MFS Communications and UUNET Technologies mergers occurred at the beginning of 1996. The acquisitions of CNS and ANS and the Brooks Fiber merger are not included.

Internacional (TISA), Telefonica's international unit focused primarily on Latin America.

The partnerships allow WCOM, MCI, and Telefonica to focus on the markets in which they have expertise and to receive financial support for their further expansion, while reaping the benefits of expanding into new markets via their partners. In particular, WCOM gains a financial partner to expand its already substantial European base and Telefonica's expertise in Latin America. WCOM, which did not have plans to embark on a network build-out in Latin America, can take advantage of Telefonica's capital expenditure program in the fastest growing region in the telecommunications industry. In the past, WCOM has avoided partnerships, because it believed independence was important. However, customers' requirements for worldwide communications services necessitated an alliance with Telefonica to expand WCOM's existing reach. Regardless, WCOM did not stray far from its stated strategy: it structured the deal so that one company is in control. Other struggling "mega networks," such as Global One and Unisource, structured their consortiums as joint ventures without clear lines of control among the partners.

WCOM will continue to approach Asian markets cautiously.

Finally, WCOM is selectively exploring opportunities in Asia. Currently, the company offers services using leased facilities in certain Asian markets, including Japan, Hong Kong, and Singapore. Management has exercised prudent spending in the region, since the regulatory environment is two-to-three years behind Europe in terms of liberalization. WCOM spent less than \$20 million in Asia in 1997 and expects to spend approximately \$78 million in 1998. Of the total capital expenditures for 1998, \$58 million are allocated to Japan. In the first quarter of 1998, WCOM was

the first international carrier to be granted authority to own and operate domestic and international facilities in Japan, and it is bidding for a similar license in Singapore.

Diversity of product offerings and geographic presence limits competitive exposure to any one segment of the telecommunications market, including the core U.S. long distance business.

WCOM's earnings will continue to accelerate, regardless of pressure on long distance revenues, as the company expands its bundled product offerings, capitalizes on the growing demand for data and Internet services, and continues to build out its international operations. AT&T and MCI experienced revenue declines in their core business last year, which will only be exacerbated if and when the RBOCs gain entry into long distance. For WCOM, however, data, Internet, and non-U.S. revenues should more than offset any drop in long distance voice traffic. WCOM's Internet and international operations were its two fastest growing business segments in 1997 (see Table 4). Internet revenues increased over 100% to \$566 million on December 31, 1997 from December 31, 1996 pro forma figures of \$253 million, and revenues from international operations increased 74% for the year ending December 31, 1997. Overall, more than 50% of WCOM's revenues are growing at over 50% per year. WCOM's revenues have increased by five times since 1993 and by 64% in 1997 alone. Revenue minutes increased to 37.6 billion in 1997 from 24.5 billion in 1996, reflecting a volume increase of over 50%.

The completion of WCOM's domestic network build-out and further merger cost synergies should also enhance earnings growth. As evidenced by improving operating and cash flow margins, WCOM is already benefiting from

moving voice and data traffic to its own network. WCOM's line costs as a percentage of total revenues decreased to 51.6% in 1997 from 54.8% and 54.9% in 1996 and 1995, respectively, as a result of moving network traffic to its own facilities and avoiding the access charges incurred in using resale. This is a significant improvement from when WCOM was paying more than 60% in line costs. With the domestic build-out complete and further line cost savings expected from the MFS merger, WCOM should experience continued margin improvement. The company realized \$120 million of sales, general, and administrative (SG&A) savings and more than \$200 million of network savings from the MFS merger in 1997. While the SG&A savings will flatten out, WCOM expects to receive additional savings from line costs in 1998. Future acquisitions, such as the proposed merger with MCI, would produce further network savings.

WCOM and MCI are a good strategic fit and would create the premier telecommunications provider in the industry.

If the merger between WCOM and MCI is consummated, MCI WorldCom would be the premier telecommunications provider in the industry. WCOM offered MCI shareholders \$51 per share in WCOM stock in a transaction valued at \$37 billion, which was accepted by MCI's board of directors and shareholders. Approvals from several state government bodies, the FCC, the Department of Justice (DOJ), and the Commission of the European Communities (European Commission) are still pending. British Telecommunications (BT), which currently owns 20% of MCI, would receive \$7 billion in cash for its stake. If the merger is consummated, WCOM would become the third-largest telecommunications company among U.S. long distance

Table 5

Combined network statistics

approximate, as of October 1, 1997

	WorldCom	Brooks Fiber	MCI	Combined
Domestic cities (fiber networks)	52	45	35	92 (net)
Local route miles	4,000	2,000	3,000	9,000
Long distance route miles	20,000	—	25,000	45,000
International route miles	5,000	—	—	5,000
Local switches	38	22	24	84
Employees	15,000	1,600	50,000	66,600

carriers and RBOCs, in terms of assets, behind AT&T and Bell Atlantic. MCI would add several tangible and intangible assets to WCOM's long distance, Internet, international, and local capabilities (see Table 5).

Long distance

MCI WorldCom would be the second-largest long distance carrier in the U.S. with 25% of the long distance market. MCI's strong presence in the business market – in particular, it has many multinational customers – complements WCOM's strategy. Multinational customers offer the most potential for increased revenues in terms of bundled voice and data services. MCI also contributes a significant residential customer base. WCOM has not focused on the consumer market to date, probably because it is difficult to generate customer loyalty when you are competing against three household brand names – those of AT&T, MCI, and Sprint – and your own name changes with each acquisition. Despite initial conjecture to the contrary, WCOM considers MCI's residential service to be a core business of the new entity. MCI's high-margin customers, whom other long distance carriers vie to obtain and keep, would be an asset to the combined company. WCOM is not likely to sell a business that produces an estimated \$7 billion in revenues but, rather, would likely make the asset more profitable by bundling residential voice service with other product offerings. Finally, and possibly most important, MCI would bring to the combined entity unparalleled marketing expertise in the long distance arena and national customer support services, such as billing and customer care.

Internet

MCI WorldCom would have a widespread Internet backbone network in terms of fiber, dedicated POPs, and traffic. Internet market share is difficult to measure; however, the company projects that it would capture 20% of all Internet revenues. Similar to UUNET, MCI provides Internet connectivity and transport services to non-facilities-based and reseller ISPs.

International

MCI is the second-largest seller of international service after AT&T. However, it does not own any international facilities and is completely dependent on making deals with the PTTs in Europe. Therefore, moving MCI's international traffic to WCOM's international networks and trans-Atlantic cable offers a tremendous cost savings opportunity. WCOM has a strong hold in Europe and an expanding presence in Asia, while MCI offers joint ventures and alliances in North America and South America, including Avantel in Mexico and Stentor in Canada. The

recent announcement of a partnership between WCOM, MCI, and Telefonica further enhances the companies' presence in Latin America.

Local

When all is said and done, MCI WorldCom would have 102 domestic local city networks covering 70% of the U.S. business market. By acquiring Brooks Fiber and MCI Metro, MCI's local market entry vehicle, WCOM accelerated its domestic local city development in secondary markets by one-to-two years. Moreover, MCI Metro, present in 30 cities, was in the early stages of development and a source of significant capital investment. MCI's losses in local service in 1997 were what compelled BT to negotiate a lower price for MCI and allow WCOM to step in with a higher offer. MCI WorldCom now can divert the funds allocated to MCI Metro to other areas.

We expect the WCOM and MCI merger to be successfully completed, despite regulatory and cultural challenges.

Although the combination of WCOM and MCI makes strategic sense, it is likely to face some challenges both externally and internally. Externally, the merger must be approved by various state government bodies, the FCC, the DOJ, and the European Commission. WCOM is still awaiting approval from approximately six states; the company expects to receive all state approvals by June or July 1998. The DOJ and European Commission should provide their decisions in mid-1998, with the FCC following shortly thereafter.

Despite antitrust concerns, we fully expect the MCI WorldCom merger to receive regulatory approval. WCOM still expects the merger to close by mid-1998, but we forecast a later date to account for regulatory inquiries. Both the DOJ and the European Commission have expressed concerns over MCI WorldCom's combined market share of the Internet backbone. Given the combined entity's potential long distance and Internet market share, such antitrust concerns and inquiries were fully expected. Several factors should offset potential concerns regarding MCI WorldCom's control over data traffic. First, the Internet is expanding rapidly, and several new entrants (e.g., Qwest Communications) are building nationwide, high-bandwidth networks. Second, the FCC has an incentive to approve the merger in that it can be used to spur local competition in the business market and support the RBOCs' arguments to allow them into long distance. Moreover, if approved, the merger may compel the FCC to allow the RBOCs into long distance as a means to offset the concentration of long distance market share in the top three carriers – AT&T, MCI WorldCom, and Sprint. At most, the regula-

tors may require MCI WorldCom to divest assets to allay fears of a monopoly; however, we do not expect asset sales to negatively impact the company. Regulatory concessions may also take the form of access agreements designed to keep the backbone accessible.

Internally, MCI WorldCom would have to overcome cultural differences between the two organizations. The companies are similar in that they were born outside the old telephone monopoly and are not hampered by the bureaucracy of AT&T and the RBOCs. The companies' common entrepreneurial background is an asset in the dynamic telecommunications industry. However, while WCOM has used acquisitions to supplement its internal growth, MCI has relied upon product innovation and customer acquisition and retention strategies to grow its business. WCOM's sales force has been successful in selling a basic product and is among the most profitable in the sector, at \$500,000 of revenue per employee. Their productivity should be enhanced by MCI's marketing prowess. Regardless, senior management would need to communicate a common strategy to its employees to avoid a culture clash. The risks associated with this endeavor are mitigated by WCOM's past experience in mergers and acquisitions. WCOM has successfully integrated a wide array of companies from long distance to local to Internet and should do the same with MCI.

WCOM and MCI merger synergies would produce an entity of considerable financial strength; we would rate MCI WorldCom as A3.

MCI WorldCom would have considerable financial flexibility and cash generating ability due to the cost synergies inherent in the merger, and we would assign the

combined entity a JPMS rating of A3. As enumerated by management, the merger would generate significant cost synergies from avoided line costs, elimination of MCI's local build-out, and decreased SG&A expenses (see Table 6). Management expects savings to total \$2.5 billion in the first year following consummation of the merger and grow to \$5.6 billion by the year 2002. Total cumulative savings for the five years are expected to be \$20 billion or more. Additionally, the combined entity expects to save \$2 billion annually in capital expenditures. We believe that the cost savings are real and that WCOM is on track to deliver them as expected. Integration with MCI has already begun, so that the company is not starting from ground zero upon consummation of the merger, and WCOM is hoping to achieve monthly network cost savings of \$40–50 million by 1998 year-end. Although not specified by senior management in detail, the combined entity should also generate increased revenues. Greater revenue opportunities can be attributed to three factors: cross-selling and product bundling, reduced customer churn, and using each other's networks to service customers.

MCI WorldCom would post the same, if not a slightly better, balance sheet than MCI or WCOM on a stand-alone basis, despite the \$7 billion of additional debt for the cash payment to BT for its 20% stake in MCI. Immediately after merger consummation, MCI WorldCom would have approximately 31% debt on its balance sheet. Estimated 1999 pro forma pretax and EBITDA coverages of 6.5 times and 9.1 times, respectively, are several times better than WCOM's current ratios. Even while keeping revenues flat, MCI WorldCom's pretax and EBITDA coverages would grow to 11.6 times and 14.5 times, respectively, by 2002, which are comparable to its largest long distance and RBOC competitors. In our calculations, we assume that free

Table 6

Cost synergies from WorldCom and MCI Communications merger

	1999	2000	2001	2002
Operating cost savings (\$ millions)	2,505	3,567	4,609	5,596
Operating cost savings (\$ billions)	1999			2002
Core sales, general & administrative expenses	1.0			1.3
MCI local savings	0.5			1.2
Domestic line costs	0.6			1.8
International line costs	0.4			1.3
Total	2.5			5.6
Capital expenditure savings (\$ billions)	1999			2002
Long distance/international/Internet	0.9			1.3
Local	0.7			0.3
IT	0.4			0.4
Total	2.0			2.0

cash flow is used to reduce debt and that half of the capital expenditure savings are reinvested. Since the transaction would be accounted for under the purchase method of accounting, it would be easier to sell assets. Therefore, further cash could be provided by the sale or monetization of nonstrategic assets, including MCI's \$1.3 billion investment in The News Corporation Limited.

Since the cost savings at MCI WorldCom would significantly improve the bottom line and provide the cash flows necessary for servicing increased levels of debt, it is unlikely that the company would maintain its current low leverage going forward. We would expect MCI WorldCom to develop a more balanced capital structure with equal levels of debt and equity. Considering increased levels of debt, capital expenditures, and modest increases in revenues, five-year estimates of pro forma pretax and EBITDA coverages would still exceed those of more leveraged telephone companies, such as GTE Corporation.

Rating agency conservatism allows for rating improvement over the long term.

Although we rate MCI WorldCom as A3 based upon the combined entity's financial strength and cash generating ability, we are not surprised that the rating agencies do not give the combined entity the benefit of the doubt. S&P has indicated that it would assign a BBB+ corporate credit rating with a positive outlook to the combined entity upon merger consummation. Moody's has weighed in with a

Baa2 rating. Both these ratings are dependent upon a favorable regulatory outcome to the merger approval. In addition, both rating agencies have adopted a "show me" attitude, although S&P has been more generous. Despite WCOM's excellent track record for integrating acquisitions, the sheer size of the combination leads the agencies to proceed with caution. The combined entity would have \$48 billion in assets, \$27 billion in revenues, and 70,000 employees. Moreover, both agencies may want to determine how MCI WorldCom would use its free cash flow and leave enough "breathing room" in the rating to accommodate future acquisitions and capital expenditures. Since WCOM would have its hands full integrating MCI into the current WCOM organization, it is unlikely that it would pursue another, large-scale transaction in the near term.

Upon merger consummation, MCI will be a wholly owned subsidiary of MCI WorldCom, and MCI bonds currently outstanding will remain at the MCI subsidiary level. All other debt, aside from the MCI bonds currently outstanding, will reside at the parent company level, and no new debt issuance will take place at the subsidiary level. MCI has recently announced that it is closing out its commercial paper program (CP), and all future CP will be issued at the WCOM level. With prior acquisitions, WCOM has exchanged the bonds at the subsidiary level for bonds of the parent company. With the current merger, an exchange may occur at a later date; however, the economics are less compelling, since MCI has a higher rating (and cheaper financing) than WCOM.

Table 7

WorldCom financial summary

\$ billions

	1997	1996	1995 ¹	1994 ²	1993 ³
Total revenues (\$)	7.4	4.5	3.7	2.2	1.5
Revenue growth (%)	63.9	21.3	64.6	52.3	55.5
Total assets (\$)	22.4	20.0	6.7	3.4	3.2
Total capital (adjusted) (\$)	20.8	18.4	5.9	2.7	2.7
Capital expenditures (\$)	2.6	0.7	0.4	0.2	0.1
Pretax coverage (x)	2.77	0.80	2.62	2.01	6.25
Cash flow coverage (x)	4.89	4.59	3.87	6.80	8.29
EBITDA coverage (x)	4.81	1.94	3.78	4.96	8.67
Cash flow / total debt (%)	24.2	17.5	21.1	35.5	38.7
EBITDA / total debt (%)	29.9	9.5	27.7	30.3	46.0
Internally funded ratio (%)	65.4	145.1	206.5	152.2	352.1
Operating income / sales (%)	14.9	20.0	18.3	7.7	16.6
Operating cash flow / sales (%)	27.5	26.7	26.7	15.1	23.5
Return on equity (%)	2.8	NM	12.2	NM	6.7
Dividend payout (%)	—	—	—	—	—
Common equity (%)	65.1	70.4	37.3	66.7	70.6
Preferred equity (%)	—	—	—	—	—
Total debt (%)	34.9	29.6	62.7	33.3	29.4

¹ Financial statements were restated in 1996.² Income statement and cash flow statement were restated in 1996.³ Financial statements were restated in 1994.

Table 8

Comparison points

\$ billions, as of December 31, 1997

Ratings	WorldCom	360° Comm.	AirTouch ¹ Comm.	Century Telephone	GTE Corp.	Frontier Corp.	Sprint Corp.	AT&T Corp.
Moody's	Baa2	Ba1	Baa2	Baa1	Baa1	A3	A3	Aa3
S&P	BBB-	BBB-	BBB+	BBB+	A-	A	A-	AA-
DCR	BBB-	BBB-	NR	NR	A-	A-	A	AA
JPMS	BBB3	BBB3	BBB1	BBB1	A3	A3	A3	A1
Total revenues (\$)	7.4 ²	1.3	5.0	0.9	23.3	2.4	14.9	51.3
Local service (%)	—	—	—	59	28	28	36	4
Access revenues (%)	—	—	—	—	21	—	—	—
Long distance (%)	—	—	—	—	10	69	60	90
Wireless (%)	—	100	100	34	12	—	—	8
Other and intercompany (%)	—	—	—	7	29	3	4	-2
Total assets (\$)	22.4	2.9	16.6	4.7	42.1	2.5	18.2	58.6
Total capital (adjusted) (\$)	20.8	2.5	13.2	4.0	27.3	2.1	13.9	35.9
Pretax coverage (x)	2.77	2.26	5.65	5.06	3.89	4.66	5.36	11.80
Cash flow coverage (x)	4.89	3.26	9.04	5.42	5.28	6.84	10.98	16.80
EBITDA coverage (x)	4.81	3.53	9.76	7.89	6.43	7.53	10.27	17.63
Cash flow / total debt (%)	24.2	16.5	60.1	9.4	34.0	36.0	72.3	78.2
EBITDA / total debt (%)	29.9	25.8	73.0	16.7	51.1	46.5	74.4	87.2
Internally funded ratio (%)	65.4	116.5	250.5	125.2	92.5	100.0	107.6	115.4
Operating income / sales (%)	14.9	20.3	16.8	29.7	24.1	12.4	16.5	13.6
Operating cash flow / sales (%)	27.5	34.0	35.6	47.4	40.8	21.2	28.1	21.0
Return on equity (%)	2.8	15.6	4.9	11.1	34.8	16.9	10.2	19.7
Dividend payout (%)	—	—	—	15.7	64.5	88.7	46.7	47.9
Common equity (%)	65.1	20.4	56.2	32.6	29.5	44.5	65.0	63.0
Preferred equity (%)	—	—	20.4	0.2	—	0.9	0.1	—
Total debt (%)	34.9	79.6	23.4	67.2	70.5	54.6	34.9	37.0

¹ JPMS estimates. Pro forma financial statements including the acquisition of U.S. wireless properties from US WEST Media Group.

² Revenue breakout by local and long distance is not available.

Table 8 (continued)
Comparison points
\$ billions

Ratings	British Telecom	Cable & Wireless	Deutsche Telekom	France Telecom	Telecom Italia	Telefonica de Espana
Moody's	Aa1	A3	Aa2	Aa1	NR	A2
S&P	AAA	NR ³	AA-	AA+	NR	AA-
DCR	NR	NR	NR	NR	NR	NR
JPMS	AA1	A3	AA3	AA1	AA2	A1
Total revenues (\$)	24.5	9.9	40.9	26.1	26.6	15.5
Total assets (\$)	NA	NA	NA	NA	NA	NA
Total capital (\$)	23.7	9.0	93.9	32.9	22.7	29.8
Pretax coverage (x)	NA	NA	NA	NA	NA	NA
Cash flow coverage (x)	18.49	12.88	2.83	5.86	8.84	4.35
EBITDA coverage (x)	17.33	12.96	3.67	8.53	11.17	5.92
Cash flow / total debt (%)	195	97	22	39	91	38
EBITDA / total debt (%)	183	98	29	57	115	52
Internally funded ratio (%)	NA	NA	NA	NA	NA	NA
Operating income / sales (%)	21.7	25.4	20.3	16.1	19.4	27.9
Operating cash flow / sales (%)	41.5	36.8	35.3	26.3	37.8	40.7
Return on equity (%)	17.5	32.3	5.4	16.1	18.2	13.7
Dividend payout (%)	56.5	32.3	73.4	NA	72.3	NA
Common equity (%)	78	58	31	47	51	44
Preferred equity (%)	—	—	—	—	—	—
Total debt (%)	22	42	69	53	49	56
Year-end date	3/97	3/97	12/96	12/97	12/96	12/97



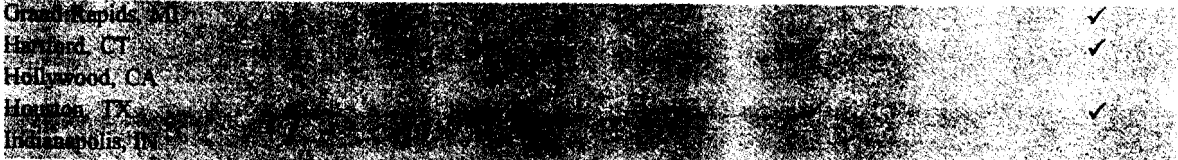
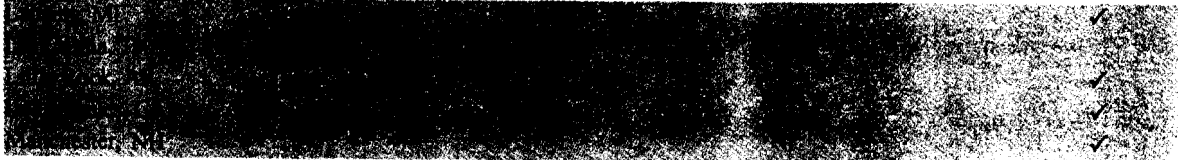
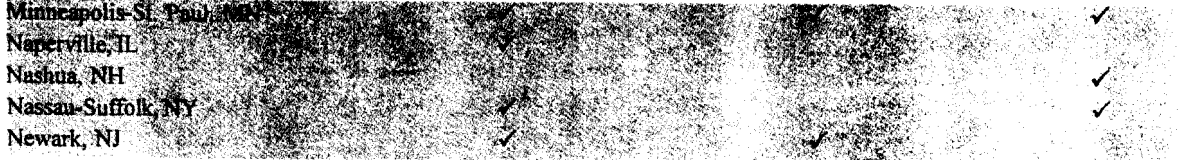
³ Short-term S&P rating is A-2.

Note: Financial statements are prepared according to local accounting principles.

Appendix 1

WorldCom, Brooks Fiber, and MCI local networks

in operation or development, as of October 1, 1997

Cities	WorldCom	MCI	Brooks Fiber
Addison, TX	✓		
Albany, NY	✓		
Albuquerque, NM			✓
Alpharetta, GA	✓		
Atlanta, GA	✓	✓	
			
Boston, MA	✓	✓	
Buffalo, NY	✓		
Burlington, MA	✓		
Chicago, IL	✓	✓	
Cincinnati, OH		✓	
			
Dunwoody, GA	✓		
Evanston, IL	✓		
Fort Lauderdale, FL		✓	
Fort Worth, TX			✓
Fresno, CA			✓
			
Hartford, CT			✓
Hollywood, CA			✓
Houston, TX			✓
Indianapolis, IN			✓
Jackson, MS			✓
Jersey City, NJ	✓		
Kansas City, MO			✓
King of Prussia, PA	✓		
Knoxville, TN			✓
			
Memphis, TN	✓		
Miami, FL	✓		
Middlesex, NJ	✓		
Milpitas, CA			✓
Milwaukee, WI		✓	
			
Minneapolis-St. Paul, MN		✓	✓
Naperville, IL			✓
Nashua, NH			✓
Nassau-Suffolk, NY			✓
Newark, NJ	✓	✓	

Appendix 1 (continued)

WorldCom, Brooks Fiber, and MCI local networks
in operation or development, as of October 1, 1997

Cities	WorldCom	MCI	Brooks Fiber
New York, NY	✓	✓	
Northern Virginia	✓		
Oklahoma City, OK			✓
Oakland, CA	✓		
Orlando, FL	✓	✓	
Phoenix, AZ			
Phoenix II, AZ			
Pittsburgh, PA	✓	✓	
Portland, ME			✓
Portland, OR	✓	✓	
Portland II, OR	✓		
Princeton, NJ	✓		
Providence, RI			✓
Raleigh, NC		✓	
Reno, NV			✓
Richmond, VA	✓		
Rochester, NY	✓		
Sacramento, CA			✓
Salt Lake City, UT			✓
Smyrna, GA	✓		
Southfield, MI	✓		
St. Louis, MO	✓		✓
San Antonio, TX		✓	✓
San Diego, CA	✓	✓	
San Francisco, CA	✓	✓	✓
San Jose, CA	✓		✓
San Mateo, CA			✓
Santa Clara, CA			✓
Seattle, WA	✓	✓	
Springfield, MA			✓
Springfield, MO			✓
Stamford, CT	✓		✓
Stockton, CA			✓
Suburban, Maryland	✓		
Sunnyvale, CA			✓
Tampa, FL	✓	✓	
Toledo, OH			✓
Traverse City, MI			✓
Troy, MI	✓		
Tucson, AZ			✓
Tulsa, OK			✓
Waco, TX			✓
Walnut Creek, CA	✓		
Waltham, MA	✓		
Washington, DC	✓	✓	
White Plains, NY	✓		✓
Wilmington, DE	✓		

Glossary

Access charge

The fees paid by interexchange carriers to local exchange carriers for use of local facilities. Also, the amount paid by subscribers to obtain access to local networks.

Access line

A circuit between a subscriber and a switching center.

Analog

Opposite: Digital

A method of storing, processing, and transmitting information through the use of a continuous (rather than pulsed or digital) electrical signal that varies like music or voice in amplitude (strength), frequency (pitch), and phase (alignment). Digital technology, which offers greater capacity and better quality transmission, is challenging analog.

Asymmetric digital subscriber line (ADSL)

A form of xDSL technology that allows for data transmission over the copper wire of a telephone network. Although the wires coming into the subscriber's premises are the same wires used for regular telephone service, an ADSL circuit is much faster than a regular telephone connection.

Asynchronous transfer mode (ATM)

The first packet-switched technology designed to support integrated voice, video, and data communications.

Baby Bell

Synonyms: Bell, Regional Bell Operating Company (RBOC)

See Regional Bell Operating Company (RBOC).

Backbone

A network of broadband connections between switches.

Bandwidth

A measure of the communication capacity or data transmission rate of a circuit. The total frequency spectrum (in Hertz-cycles per second) that is allocated or available to a channel or the amount of data (in bits per second) that can be carried by a channel.

Bell

Synonyms: Baby Bell, Regional Bell Operating Company (RBOC)

See Regional Bell Operating Company (RBOC).

Broadband

Opposite: Wideband, Narrowband

A high-capacity communications circuit/path. It usually implies a speed greater than 1.544 Mbps.

Central office (CO)

Synonyms: End office, Local dial office, Switching center, Wire center

The location of telephone switching equipment at which a subscriber's lines are terminated and interconnected. The central office is usually owned and operated by a local exchange carrier. The central office has connections to a tandem office which connects to another central office for a local telephone call or to an interexchange carrier point of presence for a long distance call. Usually, there are less than 100,000 telephone lines per central office.

Circuit

A communications path with a specified bandwidth.

Circuit switching

Opposite: Packet switching

A method of communication which dedicates a single circuit to each conversation, such that users have exclusive and full use of the circuit until the connection is released.

Glossary (continued)

Coaxial cable	Two-way cable capable of carrying much higher bandwidth than copper wire. It allows for interactive services between the cable company and subscribers.
Commission of the European communities (EU)	European Union antitrust regulators.
Competitive local exchange carrier (CLEC) <i>Opposite: Incumbent local exchange carrier (ILEC)</i>	A local exchange carrier that traditionally has not possessed a monopoly to provide local telephone service and that competes for the incumbent local exchange carrier's subscriber base. They include interexchange carriers that offer local service and independents, such as Teleport Communications Group.
Digital <i>Opposite: Analog</i>	A method of storing, processing, and transmitting information through the use of distinct electronic or optical pulses that represent the binary digits zero and one. Digital, which offers greater capacity and better quality transmission, is challenging traditional analog technology.
Facilities-based carrier <i>Opposite: Reseller</i>	A carrier that uses its own facilities to provide telephone service.
FCC (Federal Communications Commission)	The federal agency that regulates interstate communications, including licenses, rates, tariffs, standards, limitations, etc. Its members are appointed by the President of the United States.
Fiber miles	The sum of the number of miles of each owned cable weighted by the number of fiber strands.
Fiber optics	A means of providing high-speed transmission using light to send images through a flexible bundle of glass fibers. Fiber-optic wire has several pluses over traditional copper wire in capacity, quality, and reliability; however, it is more expensive. For this reason, fiber has become the standard for transport ("switch to switch" connections between the central office and tandem office), but has not been adopted for access ("switch to home" connections between the central office and homes).
Frame relay	A form of packet switching. It is data oriented and not usually used for voice or video.
Incumbent local exchange carrier (ILEC) <i>Opposite: Competitive local exchange carrier (CLEC)</i>	A local exchange carrier that traditionally possessed a monopoly to provide local telephone service. They primarily include the Regional Bell Operating Companies and independents, such as GTE and the Sprint telephone operating companies.
Integrated services digital network (ISDN)	A network providing end-to-end digital connectivity for the simultaneous transmission of voice, data, video, imaging, and fax. ISDN is primarily used by small offices, home offices, and individual households for transfer of data and offers higher bandwidth than current analog modems.
Interconnection agreements	An agreement between an established local telephone company and a new local telephone company for both companies to allow their subscribers to dial each other.

Glossary (continued)

Interexchange carrier (IXC)

Opposite: Local exchange carrier (LEC)

A telephone company that provides long distance telephone service. For example, AT&T, MCI, Sprint, Worldcom, Frontier, LCI.

Kilobits per second (Kbps), Megabits per second (Mbps)

A measure of the amount of bits that can be carried per second. A bit is a contraction of the term Binary digit. It is the smallest unit of information (data) a computer can process, representing either high or low, yes or no, or one or zero. Kbps = one thousand bits per second. Mbps = one million bits per second.

Local access transport area (LATA)

Two hundred geographic service areas in the United States. Telephone service within a LATA is provided by a local exchange carrier. Service between LATAs is provided by an interexchange carrier. LATAs are represented by a three-character code.

Local exchange carrier (LEC)

Opposite: Interexchange carrier (IXC)

A telephone company that provides local telephone service. It includes incumbent local exchange carriers and competitive local exchange carriers. For example, Ameritech, GTE, Carolina Telephone & Telegraph, Century Telephone, Teleport.

Local loop

Lines/services between the subscriber and the central office.

Narrowband (voice grade)

Opposite: Broadband, Wideband

A low-capacity communications circuit/path. It usually implies speeds of 56 Kbps or less.

Packet switching

Opposite: Circuit switching

The method used to transmit data on the Internet. The data is broken up into chunks, and each chunk has the address of where it came from and where it is going. This enables data from many different sources to co-mingle on the same lines and to be sorted and directed to different destinations, thus allowing many simultaneous sessions per connection.

Point of presence (PoP)

The physical location within a LATA where an interexchange carrier's circuits connect with the lines of the local telephone company serving that LATA.

POP

The population in a market is referred to as a number of POPs.

Post telephone & telegraph (PTT)

The PTTs, usually controlled by their governments, provide telephone and telecommunications services in most foreign countries.

Glossary (continued)

Regional Bell Operating Company (RBOC)*Synonyms: Bells, Baby Bells*

The seven, now five, telephone companies carved out of the old AT&T/Bell System by Judge Harold Greene when he signed off on the divestiture of the Bell operating companies from AT&T at the end of 1983. The operating companies traditionally provided local telephone service within their regions under a monopoly. The five RBOCs are Ameritech, Bell Atlantic, BellSouth, SBC Communications, and US WEST.

Reseller

An interexchange carrier that does not own a network, but leases bulk capacity and resells portions of it at a higher rate.

Route miles

The total mileage of fiber routes.

Switch

A device which opens or closes circuits, completes or breaks an electrical path, or selects paths or circuits.

Tandem (or Toll) office

A switching facility where lines from several central offices are joined to a switch for connection to another central office for a local telephone call or to an interexchange carrier point of presence for a long distance call.

Trunk

A group of circuits between switches.

Unbundled network elements (UNE)

A minimum set of network elements the FCC requires the incumbent local exchange carriers to make available on an unbundled basis to competitive local exchange carriers. The elements include interface devices, local loops, central office and tandem switches, interoffice transmission facilities, signaling and call-related database facilities, operator services and directory assistance, and operations support systems and information.

Wideband*Opposite: Broadband, Narrowband*

A medium-capacity communications circuit/path. It usually implies a speed from 64 Kbps to 1.544 Mbps.

xDSL (Digital subscriber line)

A technology that allows for data transmission over the copper wire of a telephone network. Although the wires coming into the subscriber's premises are the same wires used for regular telephone service, an xDSL circuit is much faster than a regular telephone connection. The "x" represents variations of the same base technology. For example, ADSL (asymmetric digital subscriber line).

New York and London
May 19, 1998

J.P. Morgan Securities Inc.
Credit Research
Barbara J. Chapman (1-212) 648-2586
chapman_b@jpmorgan.com
Elaine Zaharis (1-212) 648-1118
zaharis_elaine@jpmorgan.com

J.P. Morgan Securities Ltd.
Credit Research
Guillaume Bucaille (44-171) 325-4185
bucaille_guillaume@jpmorgan.com
Matthew James (44-171) 325-5829
james_matthew@jpmorgan.com

page 22

